

WHAT IS CLAIMED IS:

1. A surface crosslinking treatment method of a water-absorbing resin powder by adding a surface crosslinking agent to a water-absorbing resin powder and heat treating the mixture, wherein the water-absorbing resin powder after the heat treatment is stirred and cooled under an air flow.

2. A surface crosslinking treatment method of a water-absorbing resin powder by adding a surface crosslinking agent to a water-absorbing resin powder and heating the mixture, wherein the water-absorbing resin powder after the heat treatment is cooled under an air flow, and at the same time, at least a part of fine particles of the water-absorbing resin powder and/or the residual crosslinking agent is removed by the air flow.

3. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in claim 1, wherein the treatment amount is 300 kg/hr or more.

4. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in any one of claims 1 to 3, wherein the air flow is generated under a reduced pressure.

5. A surface crosslinking treatment method of a water-absorbing resin powder by adding a surface crosslinking agent to a water-absorbing resin powder and heat treating the mixture, including a step of cooling the water-absorbing resin powder after the heat treatment, thereby agglomerating the water-absorbing resin powder after the

heat treatment during the step.

6. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in any one of claims 1 to 5, wherein at least one of a heat treatment machine for carrying out the heat treatment and a cooling machine for carrying out the cooling treatment has a downward inclination.

7. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in any one of claims 1 to 6, wherein an aqueous solution is added to the water-absorbing resin powder in the cooling treatment.

8. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in claim 7, wherein the aqueous solution is added to the water-absorbing resin powder showing a piston flow at a temperature of from 40 to 100 °C during the cooling treatment.

9. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in claim 7 or 8, wherein the addition of the aqueous solution is carried out using one or two or more of nozzles selected from nozzles having a spray pattern of a single-fluid or two-fluid flat spray, hollow cone or full cone.

10. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in any one of claims 7 to 9, wherein the aqueous solution contains at least one member selected from a deodorant, an anti-fungus agent, a colorant, a chelating agent, an inorganic salt, an acid, an alkali and a surfactant.

11. The surface crosslinking treatment method of a water-absorbing resin powder as claimed in to any one of claims 1 to 10, wherein the cooling treatment is carried out by a low-speed stirring type cooling machine provided with a plurality of paddles, and the water-absorbing resin powder is fluidized in a piston flow in the cooling machine.